

**What is claimed is:**

1. A position sensor comprising:
  - 5 two capacitor electrodes separated by a gap,  
  
an armature comprising a multiplicity of electric current conductors movable into and out of said gap, and
  - 10 means responsive to capacitance between said capacitor electrodes by indicating the position of said armature, and wherein  
  
each said electric current conductor is electrically insulated from every other said electric current conductor.
- 15 2. The invention as defined by Claim 1 wherein:  
  
a said electric current conductor extends from proximity to one of said capacitor electrodes to proximity to the other of said capacitor electrodes when said  
20 electric current conductor is located in said gap.
3. The invention as defined by Claim 1 wherein:  
  
said capacitor electrodes comprise tubes coaxial about an axis.
- 25 4. The invention as defined by Claim 3 wherein:  
  
said means responsive to capacitance causes electric current to flow in a said electric current conductor when said electric current conductor is located in said  
30 gap, and  
  
said armature is adapted to cause said electric current in said electric current conductor to flow in the aggregate substantially along a path collinear with a perpendicular from said electric current conductor to said axis.

5. The invention as defined by Claim 3 wherein:

said capacitance has a variation from linearity with armature position, and

5 a said tube has an edge shaped to reduce said variation.

6. The invention as defined by Claim 1 wherein:

10 a said electric current conductor comprises metal extending from  
proximity to one of said capacitor electrodes to proximity to the other of said capacitor  
electrodes when said electric current conductor is located in said gap.

7. The invention as defined by Claim 1 wherein:

15 said electrodes comprise flat plates,

said electric current conductors are movable with said armature in rotation  
about an axis for said moving said electric current conductors into and out of said gap.

- 20 8. The invention as defined by Claim 7 wherein:

said capacitance has a variation from linearity with armature angle, and

25 a said electrode comprises an edge shaped to reduce said variation from  
linearity upon said rotation of said armature.

9. The invention as defined by Claim 8 wherein:

30 said edge comprises a multiplicity of sawtooth shaped elements adapted  
to reduce said variation from linearity upon said rotation of said armature.

10. The invention as defined by Claim 7 wherein:

a said electric current conductor comprises material adapted for conducting electric displacement current.

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11. A position sensor comprising:

two capacitor electrodes separated by a gap,

10 an armature comprising electric current conductor movable into and out said gap, and

a capacitance sensor responsive to capacitance between said capacitor electrodes by indicating the position of said armature, and wherein

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said capacitance sensor causes electric current to flow in said electric current conductor when said electric current conductor is in said gap, and

20 said armature is adapted to cause said electric current to said flow from proximity to one of said capacitor electrodes to proximity to the other of said capacitor electrodes along substantially the shortest paths between said capacitor electrodes.

12. The invention as defined by Claim 11 wherein:

25 said electric current conductor comprises metal extending from proximity to one of said capacitor electrodes to proximity to the other of said capacitor electrodes when said electric current conductor is located in said gap.

13. The invention as defined by Claim 11 wherein:

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said electric current conductor comprises material adapted for conducting electric displacement current.

14. The invention as defined by Claim 13 wherein:

said electric current conductor comprises electrically conductive polymer.

5 15. A position sensor comprising:

two capacitor electrodes separated by a gap,

an armature comprising electric current conductor movable into and out  
10 of said gap, and

means responsive to capacitance between said capacitor electrodes by  
indicating the position of said armature, and wherein

15 said electric current conductor is insulated from electrical contact with all  
other electrical conductors except said capacitor electrodes.

16. The invention as defined by Claim 15 wherein:

20 said electric current conductor comprises a first surface that is in  
proximity to one of said capacitor electrodes and a second surface that is in proximity  
to the other of said capacitor electrodes when said electric current conductor is located  
between said capacitor electrodes.

25 17. The invention as defined by Claim 16 wherein:

said means responsive to capacitance causes electric current to flow in  
said electric current conductor, and

30 said armature is adapted to cause said electric current to take substantially  
the shortest routes from proximity to one of said capacitor electrodes to proximity to the  
other of said capacitor electrodes.

18. The invention as defined by Claim 15 wherein:

said means responsive to capacitance causes electric current to flow in said electric current conductor, and

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said electric current conductor is adapted to cause said electric current to flow substantially along the shortest path between said capacitor electrodes where said flow is occurring when said electric current conductor is located in said gap.

- 10 19. The invention as defined by Claim 15 wherein:

said electric current conductor comprises a multiplicity of metallic electric current conductors supported by a matrix that insulates each said metallic electric current conductor from every other said metallic electric current conductor.

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20. The invention as defined by Claim 15 wherein:

said electric current conductor comprises material adapted for conducting electric displacement current.

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21. The invention as defined by Claim 15 wherein:

said electric current conductor comprises electrically conductive polymer.